GLOSSARY OF NRCS CROP PRODUCTION AND SOIL EROSION TERMS

A FACTOR

The computed longtime average annual soil loss carried by runoff from specific field slopes in specified cropping and management systems. It is expressed in the RUSLE model in tons/acre/year.

ABRASION

Breakdown of clods, crusts, and plant material by the impact of particles moved by wind in saltation. The impacting particles may also abrade. Abrasion causes soil aggregates to break down progressively as wind erosion continues.

ACCELERATED EROSION

Erosion of soil resulting from disturbance of the natural landscape. It results largely from the consequences of human activity, such as tillage, grazing and removal of vegetative cover.

ADSORPTION

The process by which atoms, molecules, or ions are taken up from the soil solution or soil atmosphere and retained on the surfaces of solids by chemical or physical binding.

AGGREGATE STABILITY

The ability of a soil aggregate to resist various destructive forces, such as tillage, abrasion by wind or flowing water, or raindrop force.

AGGREGATION, SOIL

The cementing or binding together of primary soil particles (sand, silt, and clay) into a secondary unit, which unit contributes to the soil structure.

AGRONOMIC RATE

The rate at which fertilizers, organic wastes or other amendments can be added to soils for optimum plant growth.

AIR-DRY WEIGHT

Weight of a substance after it has been allowed to dry to equilibrium with the atmosphere.

AMENDMENT

A substance added to the soil to improve plant growth, such as lime.

ALLELOPATHY

Production of a substance by one organism that inhibits one or more other organisms.

ANGLE OF DEVIATION

The angle between prevailing wind erosion direction and a line perpendicular to: (1) the long side of the field or strip, when determining unsheltered distance using a wind erosion direction factor, or (2) row direction when determining effect of wind direction on the ridge roughness factor.

AVAILABLE WATER HOLDING CAPACITY

The capacity of a soil to hold water in a form available to plants, usually expressed in inches of water per inch of soil depth. Commonly defined as the amount of water held between field capacity and wilting point.

AVALANCHING

The increase in rate of soil flow with distance downwind across an area being eroded by wind.

BIOMASS

The total mass of living organisms in a given volume or mass of soil, or in a particular environment.

BIOCHEMICAL OXYGEN DEMAND (BOD)

The amount of oxygen required by aerobic organisms to carry out oxidative metabolism in water containing organic matter, such as sewage. BOD is used as an indirect measure of the concentration of biologically degradable material present in organic wastes. Also known as Biological Oxygen Demand.

BIOREMEDIATION

The use of biological agents to reclaim soil and water polluted by substances hazardous to the environment or human health.

BUFFER STRIP

A narrow strip of grass or other close-growing vegetation that, when placed along the contour on a slope, traps sediment produced on the slope above.

BULK DENSITY, SOIL

The mass of dry soil per unit bulk volume. The value is expressed as Mg per cubic meter, Mg m_3.

C FACTOR – WATER EROSION

Cover and management factor in RUSLE. It combines the effects of prior land use, crop canopy, surface cover, surface roughness, and soil moisture to predict a soil loss ratio for a crop or other vegetation, cropping period, or season.

C FACTOR – WIND EROSION

Climatic factor in WEQ. It is an index of climatic erosivity, specifically wind speed and surface soil moisture. The factor for any given location is based on long-term climatic data and is expressed as a percentage of the C factor for Garden City, KS, which has been assigned a value of 100.

CALCAREOUS SOIL

Soil containing sufficient free calcium carbonate or magnesium carbonate to effervesce visibly when treated with cold 0.1 N hydrochloric acid. High content of lime (up to about 5 percent), particularly in the clay fraction, appreciably increases erodibility by wind.

CALCIUM CARBONATE EQUIVALENT

The content of carbonate in a liming material or calcareous soil calculated as if all of the carbonate is in the form of $CaCO_3$. See also Lime, agricultural.

CANOPY

The vertical projection downward of the aerial portion of plants, usually expressed as percent of ground so occupied.

CARBON CYCLE

The sequence of transformations whereby carbon dioxide is converted to organic forms by photosynthesis or chemosynthesis, recycled through the biosphere (with partial incorporation into sediments), and ultimately returned to its original state through respiration or combustion.

CARBON-NITROGEN RATIO

The ratio of the mass of organic carbon to the mass of organic nitrogen in soil, organic material, plants, or microbial cells.

CATION EXCHANGE CAPACITY (CEC)

The sum of exchangeable bases plus total soil acidity at a specific pH, usually 7.0 or 8.0. It is usually expressed in centimoles of charge per kilogram of exchanger (cmolc kg-1) or millimoles of charge per kilogram of exchanger.

CLASSICAL GULLY EROSION

Erosion caused by the action of runoff water in concentrated flow channels. These flow channels are well-defined, permanent drainageways that cannot be crossed by ordinary farming operations.

CLIMATIC EROSIVITY

The relative influence of climate on field erodibility by wind in different regions, specifically the effects of average wind speed and effective soil surface moisture.

CLOD

A compact, coherent mass of soil greater than 2 millimeters in equivalent diameter, often created by tillage or other mechanical disturbance of the soil.

COARSE FRAGMENTS

Rock or mineral particles greater than 2 millimeters in diameter.

COMPOST

Organic residues, or a mixture of organic residues and soil, that have been mixed, piled, and moistened, with or without addition of fertilizer and lime, and generally allowed to undergo thermophilic decomposition until the original organic materials have been substantially altered or decomposed.

CONTOUR FARMING

The practice of using ridges and furrows left by tillage to redirect runoff from a path directly downslope to a path around the hillslope.

COVER CROP

Close-growing crop that provides soil protection, seeding protection and soil improvement between periods of normal crop production, or between trees in orchards and vines in vineyards. When incorporated into the soil, cover crops may be referred to as green manure crops.

CRITICAL WIND EROSION PERIOD

Period of the year when the greatest amount of wind erosion can be expected to occur from a field under an identified management system. It is the period when the combination of vegetative cover, soil surface conditions, and expected erosive winds result in the greatest potential for wind erosion.

CROP RESIDUE MANAGEMENT

Maintaining stubble, stalks, and other crop residue on the soil surface or partially incorporated into the surface layer to reduce erosion, conserve soil moisture, and improve soil tilth.

CROP ROTATION

A planned sequence of several different crops grown on the same land in successive years or seasons, done to replenish the soil, reduce insect, weed and disease populations, or to provide adequate feedstocks for livestock operations.

CROP TOLERANCE TO WIND EROSION

Ability of crop plants to tolerate wind blown soil particles when in the seedling stage or exposure of plant roots where soil is eroded away, or burial of plants by drifting soil, or desiccation and twisting of plants by the wind.

CRUST

A thin surface layer, where aggregates are bound together and the surface is sealed. It is more compact and mechanically stable than the soil material immediately beneath it. Crust is characterized by its dense, platey structure that becomes less distinct with depth until it merges with the soil below. Crusting is a transitory condition.

DEPOSITION

The accumulation of eroded soil material on the land surface when the velocity of the transporting agent (wind or water) is reduced.

DESERT PAVEMENT

A non-erodible soil surface devoid of erodible materials or consisting of gravel or stones left on the land surface. It occurs in desert regions as a result of the removal of fine materials by wind or water erosion. Desert pavement is virtually non-erodible.

DETACHMENT

The removal of transportable fragments of soil material from the soil mass by an eroding agent, usually falling raindrops, running water, wind, or windblown soil particles. Detachment is the process that makes soil particles or aggregates available for transport.

DROUGHT YEAR

Any year when precipitation is less than 80 percent of the long-term normal.

DRY AGGREGATE

A compound or secondary air-dry soil particle that is not destroyed by dry sieving.

DRYLAND FARMING

Crop production without irrigation that depends solely upon precipitation for moisture.

DUST STORM

A strong turbulent wind carrying large amounts of soil particles in suspension.

E TABLES

Tables derived from computer solutions (WEROS) of the Wind Erosion Equation that display values of average annual wind erosion per acre (E) for various combinations of soil erodibility (I), ridge roughness (K), climate (C), unsheltered distance (L), and vegetative cover (V).

EFFECTIVE PRECIPITATION

That portion of the total rainfall precipitation which becomes available for plant growth.

ELECTRICAL CONDUCTIVITY (EC_E)

The electrical conductance of an extract from a soil saturated with distilled water, normally expressed in units of siemens or decisiemens per meter at 25° C.

EPHEMERAL GULLY EROSION

Erosion that occurs from the action of runoff water which concentrates in shallow flow channels when rills converge. These flow channels are alternately filled with soil by tillage operations and re-formed in the same general location by subsequent runoff events.

ERODIBILITY

The susceptibility of soil to erode. Soils with low erodibility include fine textured soils high in clay that are resistant to detachment, and coarse textured soils high in sand that have low runoff. Soils having a high silt content are highly susceptible to erosion. The K factor in RUSLE expresses the erodibility of soil.

EROSIVE WIND ENERGY

The capacity of winds above the threshold velocity to cause erosion. Erosive Wind Energy is a function of the cube of wind speed and the duration of erosive winds.

EROSIVE WIND ENERGY DISTRIBUTION

The distribution of erosive wind energy over time at any geographic location.

EROSIVITY

The energy (amount) and intensity of rainstorms that cause soil to erode. Erosivity includes the effects of raindrop impact on the soil and the amount and rate of runoff likely to be associated with the rain.

EVAPOTRANSPIRATION

The combined loss of water from a given area, and during a specified period of time, by evaporation from the soil surface and by transpiration from plants.

EUTROPHICATION

A process that increases the amount of nutrients, especially nitrogen and phosphorus, in a marine or aquatic ecosystem. Eutrophication occurs naturally over geological time but may be accelerated by human activities, such as waste disposal or land drainage, leading to an increase in algae and a decrease in diversity.

FALLOW

The practice of leaving land uncropped, either weed-free or with volunteer vegetation, during at least one period when a crop would normally be grown; done to control weeds, or accumulate water or available plant nutrients.

FERTILITY, SOIL

The quality of a soil that enables it to provide nutrients in adequate amounts and in proper balance for the growth of specified plants or crops.

FERTILIZER

Any organic or inorganic material of natural or synthetic origin (other than liming materials) that is added to a soil to supply one or more plant nutrients essential to the growth of plants.

FERTILIZER ANALYSIS

The percent composition of a fertilizer as determined in a laboratory and expressed as total N, available phosphoric acid (P_2O_5) equivalent, and water-soluble potash (K_2O) equivalent.

FIBRIC ORGANIC SOIL MATERIALS

The least decomposed of all the organic soil materials containing very high amounts of fiber that are well preserved and readily identifiable as to botanical origin.

FIELD CAPACITY

The content of water, on a mass or volume basis, remaining in a soil two **(Field water capacity)** to three days after being saturated with water, and from which free drainage is negligible.

FRIABLE

A term describing soils that when either wet or dry can be easily crumbled between the fingers.

GEOLOGIC EROSION

The wearing away of the earth's surface by the forces of water and wind. Sometimes referred to as natural erosion, it is responsible for the natural topographic cycles, as it wears away higher points of elevation and constructs valleys and alluvial plains.

GREEN MANURE CROP

Any crop grown for soil improvement by being incorporated into the soil while green or soon after maturity.

GREENHOUSE EFFECT

The absorption of solar radiant energy by the earth's surface and its release as heat into the atmosphere; longer infrared heat waves are absorbed by the air, principally by carbon dioxide and water vapor, thus, the atmosphere traps heat much as does the glass in a greenhouse.

GROUND WATER

That portion of the water below the surface of the ground at a pressure equal to or greater than atmospheric. See also water table.

HARD SEED

Seed that is dormant due to a seed coat impervious to either water or oxygen.

HEMIC ORGANIC SOIL MATERIALS

Intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric materials.

HYDROLOGIC CYCLE

The fate of water from the time of precipitation until the water has been returned to the atmosphere by evaporation and is again ready to be precipitated.

HYDROSEEDING

Planting seed in a water mixture by pumping through a nozzle that sprays the mixture onto a seedbed. The water mixture may also contain addends such as fertilizer and mulches.

INOCULATE

To treat, usually seeds, with microorganisms to create a favorable response. Most often refers to the treatment of legume seeds with Rhizobium or Bradyrhizobium to stimulate dinitrogen fixation.

ISOLATED FIELD

A field where the rate of soil flow is zero at the windward edge of the field due to the presence of a stable border. An isolated field is not protected by barriers and is exposed to open wind velocities. The Wind Erosion Equation applies to conditions on an isolated field.

ISOLINE

A line on a map or chart along which there is a constant value of a variable such as wind velocity or climatic erosivity.

K FACTOR - WATER EROSION

Soil erodibility factor in RUSLE that quantifies the susceptibility of soil particles to detachment and movement by water. The K value is the soil loss rate per erosion index unit

for a specified soil as measured on a standard plot, which is defined as a 72.6-ft length of uniform 9 percent slope in continuous clean-tilled fallow.

K FACTOR – WIND EROSION

The soil roughness factor K, for WEQ. It is a measure of the effect of oriented roughness (ridges) and random roughness (cloddiness) on erosion. See Random Roughness and Ridge Roughness.

KNOLL

An abrupt change in topography characterized by windward slope change greater than 3 percent and windward slope less than 500 feet long.

KNOLL ERODIBILITY

The increase in wind erosion potential resulting from the compression of wind flow lines and accompanying increased velocity over the crest of knolls. A knoll erodibility factor is used to adjust estimated erosion where these conditions occur.

LAND CAPABILITY

The suitability of land for use without permanent damage. Land capability, as ordinarily used in the USA, is an expression of the effect of physical land conditions, including climate, on the total suitability for use, without damage, for crops that require regular tillage, for grazing, for woodland, and for wildlife. Land capability involves consideration of the risks of land damage from erosion and other causes and the difficulties in land use owing to physical land characteristics, including climate.

LAND CAPABILITY CLASS

One of the eight classes of land in the land capability classification of NRCS; distinguished according to the risk of land damage or the difficulty of land use; they include:

Land suitable for cultivation and other uses.

- Class I - Soils that have few limitations restricting their use.
- Class II - Soils that have some limitations, reducing the choice of plants or requiring moderate conservation practices.
- Class III - Soils that have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- Class IV - Soils that have very severe limitations that restrict the choice of plants, require very careful management or both.

Land generally not suitable for cultivation (without major treatment).

- Class V - Soils that have little or no erosion hazard, but that have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife food and cover.
- Class VI - Soils that have severe limitations that make them generally unsuited for cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.
- Class VII - Soils that have very severe limitations that make them unsuited to cultivation and that restricts their use largely to grazing, woodland, or wildlife.
- Class VIII - Soils and landforms that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or aesthetic purposes.

LEACHING

The removal of soluble materials from one zone in soil to another via water movement in the profile.

LIEBIG'S LAW

The growth and reproduction of an organism is dependent on the nutrient substance that is available in minimum quantity.

LIME, AGRICULTURAL

A soil amendment containing calcium carbonate, magnesium carbonate and other materials, used to neutralize soil acidity and furnish calcium and magnesium for plant growth. Classification, including calcium carbonate equivalent and limits in lime particle size, is usually prescribed by law or regulation.

LOESS

Soil material transported and deposited by wind, consisting predominantly of silt-sized particles.

LS FACTOR

The RUSLE factor that accounts for the combined effects of length and steepness of slope on soil loss. The factor value represents the ratio of soil loss on a given slope length and steepness to soil loss from a slope that has a length of 72.6-ft and a steepness of 9 percent, where all other conditions are the same.

MANAGEMENT PERIOD

A period of time during a cropping sequence when cover and management effects are approximately uniform or otherwise result in uniform rates of erosion during the period.

MINERAL SOIL

A soil composed mainly of, and having its properties determined by, mineral matter, with less than 20% organic matter. Compare with **Organic soil**.

MINERALIZATION

The conversion of an element from an organic form to an inorganic state as a result of microbial activity.

MULCH

Any material such as straw, sawdust, leaves, plastic film, loose soil, or similar material that is spread or formed upon the surface of the soil to protect the soil and/or plant roots from the effects of raindrops, soil crusting, freezing, evaporation, etc.

MULCH TILLAGE

Managing the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round, while growing crops where the entire field surface is tilled prior to planting.

NITROGEN CYCLE

The continuous process by which nitrogen circulates among the air, soil, water, plants, and animals of the earth. Nitrogen in the atmosphere is converted by bacteria into forms that green plants can absorb from the soil; animals eat these plants (or eat other animals that feed on the plants); the animals and plants die and decay; the nitrogenous substances in the decomposed organic matter return to the atmosphere and the soil.

NO-TILL/STRIP TILL

Managing the amount, orientation and distribution of crop and other plant residues on the soil surface year-round, while growing crops in narrow slots, or tilled or residue free strips in soil previously untilled by full-width inversion implement

NORTHWESTERN WHEAT AND RANGE REGION (NWRR)

Areas of non-irrigated cropland in the Pacific Northwest and mountainous regions of the west. It includes portions of eastern Washington, north central Oregon, northern and

southeastern Idaho, western Montana, western Wyoming, northern Utah and northern California. Rainfall and erosion processes in this region are dominated by winter events.

ORGANIC FARMING

A crop production system that reduces, avoids or largely excludes the used of synthetically-produced fertilizers, pesticides, growth regulators and livestock feed additives.

ORGANIC SOIL

A soil that contains a high percentage (greater than 20 percent) of organic matter throughout the solum. Compare **Mineral soil.**

OVEN-DRY WEIGHT

The weight of a substance after it has been dried in an oven at 105 degrees C, to equilibrium.

P FACTOR

The support practice factor in RUSLE. It is a measure of the soil loss with a specific support practice to the corresponding loss with upslope and downslope tillage. On cultivated land, support practices considered in RUSLE include contouring, stripcropping, buffer strips, and terraces. These practices principally effect erosion by modifying the flow pattern, grade or direction of surface runoff and by reducing the amount and rate of runoff.

PERMANENT WILTING POINT

The minimum water content of a soil at which indicator plants wilt and fail to recover when placed in a humid chamber. This is the **Wilting coefficient of a particular** that soil that is estimated by the soil water content at –1.5 MPa (-15 bars) soil matric potential.

PERMEABILITY

The ease with which water, air, or plant roots penetrate or pass through a soil horizon.

PRECIPITATION-EFFECTIVENESS

An index of the effectiveness of precipitation, calculated from mean **(PE) index** monthly precipitation and mean monthly temperature at a specific geographical location. A modified P-E index is used to represent effective surface soil moisture in calculation of the WEQ climatic factor C.

PREPONDERANCE

A ratio which expresses how much of the erosive wind energy occurs parallel to the prevailing wind erosion direction, as compared to the amount of erosive wind energy occurring perpendicular to the prevailing direction. A preponderance of 1.0 indicates that as much wind erosion force occurs perpendicular to the prevailing direction as occurs parallel to that direction. A higher preponderance indicates more of the force is parallel to the prevailing wind erosion direction.

PREVAILING WIND DIRECTION

The direction from which winds most commonly occur. This may not be the same as the prevailing wind erosion direction.

PURE LIVE SEED

Percentage of pure germinating seed: (pure seed percentage x germination percentage)/100.

PREVAILING WIND EROSION DIRECTION

The direction of erosive winds where there is potential for the greatest amount of soil to be moved, relative to the erosive force of winds from other directions.

R EQUIVALENT (R_{EQ}) FACTOR

The factor used in place of the RUSLE R factor in the Northwestern Wheat and Range Region of the U.S. to measure the unique effects of melting snow, rain on snow, and/or rain on thawing soil. Much of this soil loss occurs by rilling when the surface part of the soil profile thaws and snowmelt or rain occurs on the still partially frozen soil.

R FACTOR

The rainfall and runoff factor in RUSLE that accounts for the energy and intensity of rainstorms. It is a measure of total storm energy times the maximum 30-minute intensity.

RANDOM ROUGHNESS

The standard deviation of the soil surface elevations when changes because land slope or nonrandom (oriented) tillage marks are removed from consideration. Roughness ponds water in small localized depressions and reduces erosivity of raindrop impact and surface water flow.

REFERENCE CONDITION

A standard wind tunnel condition for small grain equivalent determination where small grain stalks 10 inches long are lying flat on the soil surface in 10-inch rows which are perpendicular to the wind direction, with stalks oriented parallel to the wind direction.

RELATIVE FIELD ERODIBILITY

An index of relative erodibility under field conditions. Wind tunnel erodibility is adjusted for the effect of unsheltered distance and of the resistance of soil textural classes to breakdown of surface crusts by abrasion and avalanching. Compared to the wind tunnel, erodibility of a field surface is greater because the longer unsheltered distance allows abrasion and avalanching to occur.

RIDGE ROUGHNESS

The degree of oriented roughness determined by the height and width of ridges formed by tillage and planting implements. Ridges provide sheltered zones that trap moving soil particles.

RILL

A small, intermittent water course with steep sides; usually only several centimeters deep.

RHIZOBIA

Bacteria able to live symbiotically in roots of leguminous plants, from which they receive energy and often utilize molecular nitrogen. Collective common name for the genus Rhizobium.

RUNOFF

That portion of precipitation or irrigation on an area which does not infiltrate, but instead is discharged from the area.

RUSLE

Revised Universal Soil Loss Equation. An empirical model that predicts long-term average annual soil loss for a given set of climatic conditions, on a defined land slope, and under a specified cropping and tillage management system. RUSLE is an update of the USLE, and contains a computer program to facilitate calculations.

SALINE SEEP

Intermittent or continuous saline water discharge at or near the soil surface under dryland conditions that reduces or eliminates crop growth. It is differentiated from other saline soil

conditions by recent and local origin, shallow water table, saturated root zone, and sensitivity to cropping systems and precipitation.

SALINE SOIL

A nonsodic soil containing sufficient soluble salt to adversely affect the growth of most crop plants. The lower limit of saturation extract electrical conductivity of such soils is conventionally set at 4 dS m^{-1} (at 25° C). Actually, sensitive plants are affected at half this salinity and highly tolerant ones at about twice this salinity.

SALTATION

Soil movement in wind where particles skip or bounce along the soil surface in response to wind forces. Particles in the size range from 0.1 to 0.5 mm (0.004 to 0.02 in) usually move in this manner.

SALT-AFFECTED SOIL

Soil that has been adversely modified for the growth of most crop plants by the presence of soluble salts, with or without high amounts of exchangeable sodium.

SALT TOLERANCE

The ability of plants to resist the adverse, nonspecific effects of excessive soluble salts in the rooting medium.

SAPRIC ORGANIC SOIL MATERIALS

The most highly decomposed of the organic materials, having the highest bulk density, least amount of plant fiber, and lowest water content at saturation.

SEASONALLY VARIABLE K FACTOR

The average annual soil erodibility K factor value that has been adjusted to reflect the temporal variability associated with freezing and thawing or wetting and drying cycles during the year.

SHEET EROSION

A form of water erosion in which a very thin layer is removed from the soil surface by detachment and overland flow.

SMALL GRAIN EQUIVALENT (SGE)

The wind erosion control equivalent of vegetative cover, compared to a small grain standard. The standard (reference condition) is defined as small grain stalks 10 inches long

lying flat on the soil surface in 10-inch rows which are perpendicular to the wind direction, with stalks oriented parallel to the wind direction. The small grain equivalent value is a function of kind, amount, and orientation of growing plants or plant residues on the soil surface.

SOIL ERODIBILITY INDEX (I)

The potential soil loss, in tons per acre per year, from a wide, level, unsheltered, isolated field with a bare, smooth, loose, and non-crusted surface, under climatic conditions like those in the vicinity of Garden City, Kansas.

SOIL LOSS TOLERANCE (T)

T is expressed as the average annual soil erosion rate (tons/acre/year) that can occur in a field with little or no long-term degradation of the soil resource thus permitting crop productivity to be sustained for an indefinite period of time.

SOIL SURFACE MOISTURE

Adsorbed water films surrounding surface soil particles that increase the soil resistance to erosion. In developing the climatic factor, soil surface moisture is assumed to be proportional to the Thornthwaite Precipitation- Effectiveness (P-E) Index.

SORTING

Separation of various size classes of soil particles or aggregates during wind erosion. Soils tend to become coarser in response to continued sorting by erosion.

SPRIGGING

Vegetative establishment of herbaceous species using stolons, rhizomes, or tillers with soil. Vegetative material may be broadcast and then lightly covered with soil, or planted using a sprigging implement.

STABLE BORDER

A stable border defines the upwind boundary of an isolated field. It is an area with sufficient protection to prevent saltation from starting, and capable of trapping and holding incoming saltation from eroding areas upwind, thus preventing saltating soil particles from entering areas downwind.

STRIPCROPPING

The practice of growing two or more crops in alternating strips along contours to control erosion.

SURFACE ARMOR

A layer of coarse fragments or other non-erodible particles resistant to abrasion that remain on the soil surface after the removal of fine particles by erosion.

SURFACE CREEP

Soil movement by wind in which the coarser fractions are transported by rolling and sliding along the ground surface, primarily by the impact of particles in saltation rather than by direct force of the wind. Particles greater than 0.5 mm (0.02 in) in size are usually moved in this manner.

SUSPENSION

Soil movement in wind whereby the finer fractions are transported over long distances floating in the windstream. Suspension is usually initiated by the impact of saltating particles. Particles moving in this manner are usually less than 0.1 mm (0.004 in) in size. Many suspension-size particles are created by abrasion during erosion.

THRESHOLD VELOCITY

The minimum velocity at which wind will begin moving soil particles from a smooth, bare, non-crusted surface. The threshold velocity is usually considered to be 13 mph at 1 foot above the soil surface, or 18 mph at 30 feet height.

TILLAGE

Conventional—Primary and secondary tillage operations normally performed in preparing a seedbed and/or cultivating for a given crop grown in a given geographical area, usually resulting in little or no crop residues remaining on the surface after completion of the tillage sequence.

Inversion—Reversal of vertical order of occurrence of layers of soil, or of the soil within a layer.

Non-inversive—Tillage that does not mix (or minimizes the mixing of) soil horizons or does not vertically mix soil within a horizon.

Subsoiling—Any treatment to non-inversively loosen soil below the A_p horizon with a minimum of vertical mixing of the soil. Any treatment to fracture and/or shatter soil with narrow tools below the depth of normal tillage without inversion and with a minimum mixing of the soil. This loosening is usually performed by lifting action or other displacement of soil dry enough so that shattering occurs.

TILTH

The physical condition of soil as related to its ease of tillage, fitness as a seedbed, and its impedance to seedling emergence and root penetration.

TOTAL MAXIMUM DAILY LOAD (TMDL)

The maximum quantity of a particular water pollutant that can be discharged into a body of water without violating a water quality standard.

TRANSPORT

The movement of detached soil material across the land surface or through the air by wind or running water. Transport of soil particles in wind is by three modes: (l) saltation, (2) suspension, and (3) surface creep.

TRANSPORT CAPACITY

The maximum amount of soil material that can be carried by wind or running water under given conditions.

TRAP STRIP

A strip of grass or other erosion-resisting vegetation, planted between cultivated strips or fields and having sufficient width, height, and density to trap and store incoming saltation. Trap strips are usually not tall enough to create significant barrier effects.

UNIT PLOT

A standard plot used to experimentally determine factor values in USLE and RUSLE. It is arbitrarily defined as being 72.6-feet long, with a uniform slope of 9 percent, in continuous fallow, tilled up and down the slope.

UNSHELTERED DISTANCE

The distance across an erodible field, measured along the prevailing wind erosion direction, beginning at a stable border on the upwind side and continuing downwind to a non-erodible or stable area, or to the downwind edge of the area being evaluated.

UNSHELTERED FIELD

A field or portion of a field characterized by the absence of windbreaks or barriers and fully exposed to open wind velocity.

USLE

Universal Soil Loss Equation. An empirical model that predicts long-term average annual soil loss for a given set of climatic conditions, on a defined land slope, and under a specified cropping and tillage management system.

VEGETATIVE WIND BARRIER

Narrow strips of annual or perennial vegetation planted at intervals across fields for wind erosion control, snow management, or protection of sensitive crops. Barriers have sufficient height and density to create a sheltered zone downwind. In the protected zone, wind velocities are reduced enough to prevent saltation from beginning. Vegetative barriers may also trap incoming saltation, but this is a secondary function.

WATER EROSION

The detachment, transport, and deposition of soil particles by rainfall and runoff.

WATER TABLE

The upper surface of ground water or that level in the ground where the water is at atmospheric pressure.

WIDE FIELD

Any field with sufficient width to allow the rate of soil flow to reach the maximum that an erosive wind can sustain. This distance is the same for any erosive wind. It varies only and inversely with erodibility of the field surface. That is, the more erodible the surface, the shorter the distance in which maximum flow is reached.

WINDBREAK

A planting of trees, shrubs, or other vegetation, usually perpendicular or nearly so to the principal wind direction, to protect soil, crops, homesteads, roads, etc., against the effects of winds, such as wind erosion and the drifting of soil and snow.

WIND ERODIBILITY GROUP

A grouping of soils that have similar properties affecting their resistance to wind erosion.

WIND EROSION

The detachment, transport, and deposition of soil by wind.

WIND EROSION DIRECTION FACTOR

A numerical factor used to calculate the equivalent unsheltered distance. The factor accounts for field shape (length/width ratio), field width, preponderance, and angle of deviation of the prevailing wind erosion direction from a line perpendicular to the long side of the field or strip.

WIND EROSION EQUATION (WEQ)

An equation used to estimate wind erosion and design wind erosion control systems. $E = f(IKCLV)$ where E is the average annual soil loss expressed in tons per acre per year; I is the soil erodibility; K is the soil ridge roughness factor; C is the climatic factor; L is the equivalent unsheltered distance across the field along the prevailing wind erosion direction; and V is the equivalent vegetative cover.

WIND STRIPCROPPING

A method of farming whereby erosion-resistant crop strips are alternated with strips of erosion-susceptible crops or fallow. Erosion-resistant strips reduce or eliminate saltation and act as soil traps designed to reduce soil avalanching. Strips are perpendicular or nearly so to the direction of erosive winds.

WIND TUNNEL

A duct in which experimental situations are created and tested by exposure to air streams under controlled conditions. Both laboratory and portable field wind tunnels are used in wind erosion research.

WINDBREAK

A living barrier of trees or combination of trees and shrubs designed to reduce wind erosion, conserve energy or moisture, control snow deposition, or provide shelter for livestock or wildlife. When used to control wind erosion, windbreaks deflect wind forces and reduce wind velocity in the downwind sheltered zone below the threshold required for initiation of soil movement.

YIELD

The amount of a specified substance produced (e.g., grain, straw, total dry matter) per unit area.